BISS Biodiversity Information Science and Standards

Biodiversity Information Science and Standards 3: e37025
doi: 10.3897/biss.3.37025

OPEN ACCESS

Conference Abstract

Mapping the Impact of Digitisation for Poorly Documented Countries: Mozambique as a case study

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Received: 10 Jun 2019 | Published: 13 Jun 2019

Citation: Neves I, Mathias M, Bastos-Silveira C (2019) Mapping the Impact of Digitisation for Poorly Documented Countries: Mozambique as a case study. Biodiversity Information Science and Standards 3: e37025. https://doi.org/10.3897/biss.3.37025

Abstract

Despite the rise of the global availability of biodiversity data by digitisation, essential regions of the world remain poorly documented (Peterson et al. 2015). Research-neglected regions that lack quality information, are mainly the species-rich and developing nations (Gaikwad and Chavan 2006). Mozambique is an African country without a wide-ranging knowledge regarding its fauna's diversity and distribution (Neves et al. 2018). Undeniably, this country's knowledge gaps constitute a significant impediment for the improvement of effective conservation measures. Primary species occurrence data across dispersed data sources can be a cost-effective resource for boosting knowledge about a country's biodiversity.

Aiming to aggregate a comprehensive dataset of Mozambique's terrestrial mammals, we compiled primary species occurrence data from dispersed data sources. The produced dataset not only gathered digitalised accessible knowledge (DAK) from the Global Biodiversity Information Facility (GBIF) and natural history collections, but also retrieved and digitalised species occurrence data enclosed in grey and scientific literature.

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Particularly for poorly documented countries, filling data gaps are crucial for new and broad insights for biodiversity research and preservation. Thus, quantification of the effects of data digitisation and mobilisation goes beyond the specific goals of organisations, institutions or data-sharing resources. The impact of data digitisation should be disseminated, not only by the number of publications and times data are accessed (Nelson and Ellis 2018), but also by the actual achievements in regions covered by DAK. To highlight the impact of further data digitisation in a poorly documented country, we examine the effective gain of further digitisation and data cleaning on the terrestrial mammals from Mozambique. We demonstrate the increase in the overall knowledge, not merely in terms of number of species, number of records, and country's coverage, but from the production of outputs with potential value for data-driven conservation research and planning.

More than 17000 records were compiled. The digitisation of data in literature as well as data cleaning and quality improvements resulted in a substantial increase in the amount of DAK, which acknowledges Mozambique's high species diversity (Fig. 1). The digitisation and data mobilisation hereby described allowed for the update of the country's terrestrial mammals checklist (Neves et al. 2018). The final dataset also expands the knowledge of the most poorly documented provinces, allowing generation of a data-driven proposal of priority areas to survey (in review). Also, an assessment of Mozambique's conservation network effectiveness for mammal protection was performed, and additional relevant areas were suggested (in prep.).

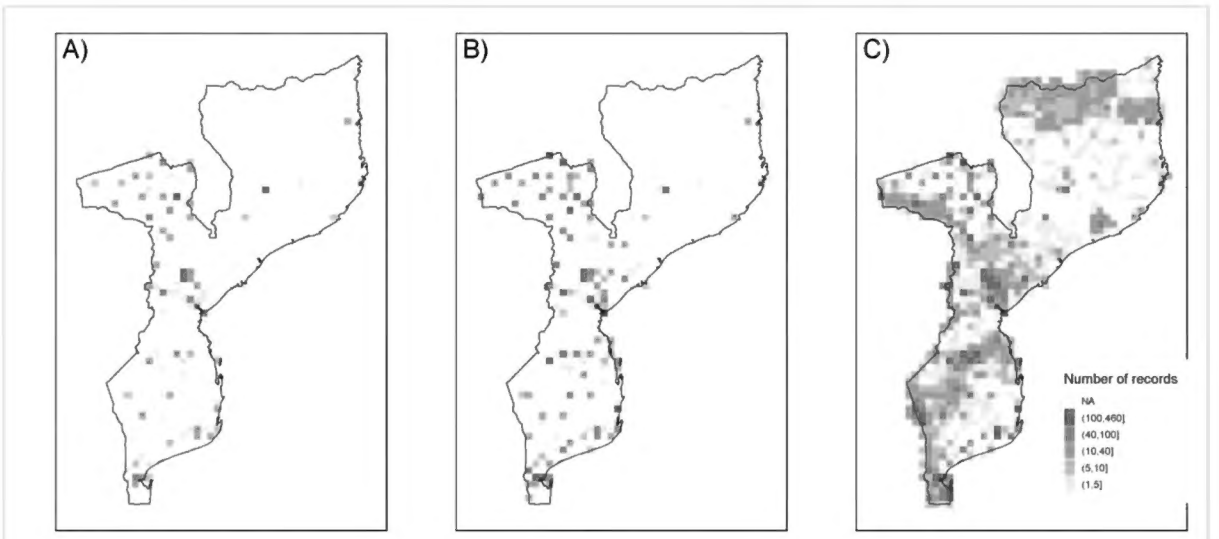

Figure 1.

Mapping the knowledge gain while compiling primary species occurrence data regarding terrestrial mammals reported for Mozambique. Spatial visualisation of A) ready-to-use digitally accessible data from online resources and natural history collections; B) digital data available after quality updates, namely after georeferencing and taxonomic verification; and C) data available after digitisation of grey and scientific literature.

The dataset compiled is an important "stepping stone" towards an enhanced knowledge of Mozambique's fauna. Biodiversity conservation and management in developing countries rich in natural resources, which often must deal with a lack of internal capacity for applied research and conservation actions, are challenges. Considering that digitisation and mobilisation of biodiversity data are resourceful processes for improving knowledge,

collaborative work between institutions of those countries and international data-provider communities could, in the short term, successfully improve the information baseline to support decision-making in future conservation and management actions.

Keywords

species-occurrence data, Africa, mammals, natural history collections, knowledge gap

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Presented at

Biodiversity_Next 2019

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